WHAT IS CLAIMED IS:

1. A hydrocarbon combustion gas generator comprising in combination:
   (a) a means for receiving at least one fuel that contains the element hydrogen, the element carbon or the elements hydrogen and carbon, wherein the fuel may be a solid, liquid or gaseous fuel derived from a waste material, and wherein the fuel may contain sulfur or nitrogen;
   (b) a means for receiving a liquid or gaseous oxidizer, wherein the oxidizer is not air;
   (c) a means for metering the fuel into a first combustion chamber, wherein the fuel is at a temperature, at a pressure, and in an oxidizer/fuel mixture ratio with the oxidizer that can cause an incomplete combustion of the fuel in the first combustion chamber upon its ignition resulting in the production of an incomplete combustion product;
   (d) a means for metering the oxidizer into the first combustion chamber, wherein the oxidizer is at a temperature, at a pressure, and in an oxidizer/fuel mixture ratio with the fuel that can cause an incomplete combustion of the fuel in the first combustion chamber upon its ignition resulting in the production of an incomplete combustion product;
   (e) a first combustion chamber in which a first combustion of the fuel and the oxidizer can occur resulting in the production of an incomplete combustion product, wherein the first combustion chamber has one or more walls;
   (f) a means for initiating a combustion of the fuel and the oxidizer that are metered into the first combustion chamber;
   (g) a means for metering additional oxidizer into a second combustion chamber or area, wherein the additional oxidizer is at a temperature, at a pressure, and in an oxidizer/fuel mixture ratio with fuel present in the incomplete combustion product produced in the first combustion chamber that enters into the second combustion chamber or area that can cause either a second incomplete combustion of the fuel present in the second

combustion chamber or area, or the complete combustion of the fuel present in the second combustion chamber or area;

(h) a means for metering the incomplete combustion product produced in the first combustion chamber into the second combustion chamber or area, wherein the incomplete combustion product produced in the first combustion chamber is at a temperature, at a pressure, and in an oxidizer/fuel mixture ratio with the additional oxidizer that enters into the second combustion chamber or area that can cause either a second incomplete combustion of the fuel present in the incomplete combustion product that enters into the second combustion chamber or area, or the complete combustion of the fuel present in the incomplete combustion product that enters into the second combustion chamber or area;

(i) a second combustion chamber or area in which a second combustion of the fuel can occur, wherein the second combustion chamber or area has one or more walls, and wherein the second combustion of the fuel can be either: (1) an incomplete combustion, wherein an incomplete combustion product is produced and enters into a third combustion chamber or area; or (2) a complete combustion, wherein a combustion gas exhaust product is produced and can exit the hydrocarbon combustion gas generator;

(j) optionally, a means for metering additional oxidizer into a third combustion chamber or area, wherein the additional oxidizer is at a temperature, at a pressure, and in an oxidizer/fuel mixture ratio with fuel present in an incomplete combustion product produced in the second combustion chamber or area that enters into the third combustion chamber or area that can cause either a complete or an incomplete combustion of the fuel present in the third combustion chamber or area;

(k) optionally, a means for metering an incomplete combustion product produced in the second combustion chamber or area into the third combustion chamber or area, wherein the incomplete combustion product produced in the second combustion chamber or area is at a temperature, at a pressure, and in an oxidizer/fuel mixture ratio with the additional

oxidizer that enters into the third combustion chamber or area that can cause an incomplete or complete combustion of the fuel present in the incomplete combustion product that enters into the third combustion chamber or area;

(l) optionally, a third combustion chamber or area in which a third combustion of the fuel can occur, wherein the third combustion of the fuel can be an incomplete or complete combustion, wherein if the combustion is a complete combustion, a combustion gas exhaust product is produced and can exit the hydrocarbon combustion gas generator, and wherein the third combustion chamber or area has one or more walls;

(m) a means for a combustion gas exhaust product produced by the hydrocarbon combustion gas generator to exit the hydrocarbon combustion gas generator, wherein the combustion gas exhaust product does not come into contact with a turbine or other electrical power-generating device;

(n) a means for introducing water to one or more areas or components of the hydrocarbon combustion gas generator that are positioned in contact with, or in a sufficiently close proximity to, one or more exterior surfaces of one or more walls of one or more combustion chambers or areas to permit at least some of the water to become converted into a superheated steam product or a dry saturated steam product, wherein the water does not come into contact with any combustion gases that are produced by the hydrocarbon combustion gas generator, wherein the superheated steam product or dry saturated steam product is maintained separate from the combustion gas exhaust product that is produced by the hydrocarbon combustion gas generator and wherein the superheated steam product or dry saturated steam product can be employed to produce electrical power when introduced into an electrical power-generating device or system; and

(o) a means for the superheated steam product or dry saturated steam product to exit the hydrocarbon combustion gas generator separately from a

combustion gas exhaust product that is produced by the hydrocarbon combustion gas generator.

2. A hydrocarbon combustion gas generator of claim 1 wherein air is not permitted to come into contact with the fuel, the oxidizer or the water, or to enter into the hydrocarbon combustion gas generator.

3. A hydrocarbon combustion gas generator of claim 1 wherein water is not permitted to come into contact with the fuel, with the oxidizer, with any combustion gases produced by the hydrocarbon combustion gas generator or with the combustion gas exhaust product, and wherein water is not permitted to enter into any of the combustion chambers or areas of the hydrocarbon combustion gas generator.

4. A hydrocarbon combustion gas generator of claim 1 wherein the hydrocarbon combustion gas generator has an ability to produce a sufficient amount of superheated steam product or dry saturated steam product to produce from about 1 to about 600 megawatts of electrical power per day.

5. A hydrocarbon combustion gas generator of claim 4 wherein the hydrocarbon combustion gas generator has an ability to produce a sufficient amount of superheated steam product or dry saturated steam product to produce from about 100 to about 200 megawatts of electrical power per day.

6. A hydrocarbon combustion gas generator of claim 4 wherein the hydrocarbon combustion gas generator has an ability to produce a sufficient amount of superheated steam product or dry saturated steam product to produce from about 5 to about 30 megawatts of electrical power per day.

7. A hydrocarbon combustion gas generator of claim 1 wherein the hydrocarbon combustion gas generator is a free-standing unit.

8. A hydrocarbon combustion gas generator of claim 1 wherein the hydrocarbon combustion gas generator is about 10 to about 14 feet long, about 2 to about 3 feet wide and about 5 feet high.

9. A hydrocarbon combustion gas generator of claim 1 wherein the hydrocarbon combustion gas generator has an ability to produce the same amount of energy or electrical power per day as a conventional apparatus for producing energy or electrical power, and wherein the hydrocarbon combustion gas generator has an ability to produce this amount of energy or electrical power on an area of land that is at least about 50% smaller in size than an area of land required for the production of energy or electrical power by the conventional apparatus.

10. A hydrocarbon combustion gas generator of claim 9 wherein the hydrocarbon combustion gas generator has an ability to produce the amount of energy or electrical power on an area of land that is at least about 65% smaller in size than an area of land required for the production of energy or electrical power by the conventional apparatus.

11. A hydrocarbon combustion gas generator of claim 10 wherein the hydrocarbon combustion gas generator has an ability to produce the amount of energy or electrical power on an area of land that is at least about 80% smaller in size than an area of land required for the production of energy or electrical power by the conventional apparatus.

12. A hydrocarbon combustion gas generator of claim 1 wherein the hydrocarbon combustion gas generator is connected with an electrical power-generating device or system, wherein the superheated steam product or dry saturated steam product travels into the electrical power-generating apparatus or system and wherein the superheated steam product or dry saturated steam product is used to produce electrical power.

13. A hydrocarbon combustion gas generator of claim 12 wherein the electrical power-generating device or system is a turbine.

14. A hydrocarbon combustion gas generator of claim 13 wherein the turbine is a condensing turbine.

15. A hydrocarbon combustion gas generator of claim 12 wherein the superheated steam product and dry saturated steam product do not cause corrosion or damage to components of the electrical power-generating device or system.

16. A hydrocarbon combustion gas generator of claim 1 wherein the hydrocarbon combustion gas generator is connected with one or more other hydrocarbon combustion gas generators of claim 1.

17. A hydrocarbon combustion gas generator of claim 1 wherein the hydrocarbon combustion gas generator may be transported from one location to another location.

18. A hydrocarbon combustion gas generator of claim 1 wherein the hydrocarbon combustion gas generator may be present and operated on a vessel that travels in water.

19. A hydrocarbon combustion gas generator of claim 18 wherein the vessel is a ship or barge.

20. A hydrocarbon combustion gas generator of claim 19 wherein the ship or barge employs waste materials that are produced thereon as a fuel for the hydrocarbon combustion gas generator.

21. A hydrocarbon combustion gas generator of claim 20 wherein such use of the waste materials results in a reduction in the amount of waste materials that are present on the ship or barge without requiring the ship or barge to travel to land.

22. A hydrocarbon combustion gas generator of claim 1 wherein the hydrocarbon combustion gas generator has an ability to become fully operational within a period of about 30 minutes after its operation is commenced or recommenced.

23. A hydrocarbon combustion gas generator of claim 22 wherein the hydrocarbon combustion gas generator has an ability to become fully operational within a period of about 15 minutes after its operation is commenced or recommenced.

24. A hydrocarbon combustion gas generator of claim 23 wherein the hydrocarbon combustion gas generator has an ability to become fully operational within a period of about 5 minutes after its operation is commenced or recommenced.

25. A hydrocarbon combustion gas generator of claim 1 wherein the hydrocarbon combustion gas generator has an ability to be operated for a period of about 24 hours per day for about 7 days each week.

26. A hydrocarbon combustion gas generator of claim 1 wherein the hydrocarbon combustion gas generator is employed in a cogeneration system or plant, a trigeneration system or plant or a quadgeneration system or plant.

27. A hydrocarbon combustion gas generator of claim 26 wherein the hydrocarbon combustion gas generator is employed in the trigeneration steam energy generating plant illustrated in FIG. 14.

28. A hydrocarbon combustion gas generator of claim 1 wherein the hydrocarbon combustion gas generator can be employed with an electrical-power generating apparatus or system to produce electrical power at a cost of about 3.0 cents per kilowatt-hour or lower.

29. A hydrocarbon combustion gas generator of claim 28 wherein the hydrocarbon combustion gas generator can be employed with an electrical-power generating apparatus or system to produce electrical power at a cost of about 1.7 cents per kilowatt-hour or lower.

30. A hydrocarbon combustion gas generator of claim 29 wherein the hydrocarbon combustion gas generator can be employed with an electrical-power generating apparatus or system to produce electrical power at a cost of about 1.3 cents per kilowatt-hour or lower.

31. A hydrocarbon combustion gas generator of claim 30 wherein the hydrocarbon combustion gas generator can be employed with an electrical-power generating apparatus or system to produce electrical power at a cost of about 0.5 cents per kilowatt-hour or lower.

32. A hydrocarbon combustion gas generator of claim 31 wherein the hydrocarbon combustion gas generator can be employed with an electrical-power generating apparatus or system to produce electrical power at a cost of about 0.2 cents per kilowatt-hour or lower.

33. A hydrocarbon combustion gas generator of claim 1 wherein the hydrocarbon combustion gas generator has a combustion efficiency ranging from about 50% to about 100%.

34. A hydrocarbon combustion gas generator of claim 33 wherein the hydrocarbon combustion gas generator has a combustion efficiency ranging from about 70% to about 100%.

35. A hydrocarbon combustion gas generator of claim 34 wherein the hydrocarbon combustion gas generator has a combustion efficiency ranging from about 90% to about 100%.

36. A hydrocarbon combustion gas generator of claim 35 wherein the hydrocarbon combustion gas generator has a combustion efficiency ranging from about 95% to about 100%.

37. A hydrocarbon combustion gas generator of claim 1 wherein the hydrocarbon combustion gas generator has a thermal efficiency ranging from about 50% to about 87%.

38. A hydrocarbon combustion gas generator of claim 37 wherein the hydrocarbon combustion gas generator has a thermal efficiency ranging from about 65% to about 87%.

39. A hydrocarbon combustion gas generator of claim 38 wherein the hydrocarbon combustion gas generator has a thermal efficiency ranging from about 75% to about 87%.

40. A hydrocarbon combustion gas generator of claim 1 wherein the hydrocarbon combustion gas generator does not contain a third combustion area.

41. A hydrocarbon combustion gas generator of claim 1 wherein the hydrocarbon combustion gas generator has a means for metering additional oxidizer into a third combustion area, a means for metering an incomplete combustion product produced in the second combustion chamber or area into the third combustion area and a third combustion area.

42. A hydrocarbon combustion gas generator of claim 41 wherein the hydrocarbon combustion gas generator comprises one or more additional combustion chambers or areas having one or more walls, and one or more additional means for metering oxidizer into the one or more additional combustion chambers or areas, wherein in each of the additional combustion chambers or areas the additional oxidizer that is metered therein is at a temperature, at a pressure, and in an oxidizer/fuel mixture ratio with fuel present therein to cause either an additional incomplete combustion of the fuel present therein, or the complete combustion of the fuel present therein, and wherein a complete combustion of the fuel occurs in at least one of the combustion chambers or areas other than the second combustion chamber or area or the third combustion area and produces a combustion gas exhaust product that can exit the hydrocarbon combustion gas generator.

43. A hydrocarbon combustion gas generator of claim 1 wherein the fuel and the oxidizer are metered into the combustion chambers or areas through fuel or oxidizer orifices.

44. A hydrocarbon combustion gas generator of claim 43 wherein the orifices have a diameter ranging from about 0.0015 to about 6 inches.

45. A hydrocarbon combustion gas generator of claim 44 wherein the orifices have a diameter ranging from about 0.01 to about 1.0 inches.

46. A hydrocarbon combustion gas generator of claim 43 wherein the fuel, the oxidizer or the fuel and the oxidizer are metered into each of the combustion chambers or areas in an angled manner, resulting in at least one point of impingement between the fuel and the oxidizer.

47. A hydrocarbon combustion gas generator of claim 46 wherein the fuel and the oxidizer form a triplet impinging stream pattern.

48. A hydrocarbon combustion gas generator of claim 1 wherein the fuel and the oxidizer become vortexed in the first combustion chamber of the hydrocarbon combustion gas generator.

49. A hydrocarbon combustion gas generator of claim 48 wherein unburned fuel and oxidizer that enter into one or more other combustion chambers or areas of the hydrocarbon combustion gas generator become vortexed.

50. A hydrocarbon combustion gas generator of claim 1 wherein the water enters the hydrocarbon combustion gas generator at one or more locations and circulates around, but not in, one or more combustion chambers or areas of the hydrocarbon combustion gas generator.

51. A hydrocarbon combustion gas generator of claim 50 wherein the water circulates through a plurality of tubes that form one or more tube assemblies.

52. A hydrocarbon combustion gas generator of claim 51 wherein the tube assemblies form the walls of one or more of the combustion chambers or areas.

53. A hydrocarbon combustion gas generator of claim 51 wherein the tubes are circular or oval in shape.

54. A hydrocarbon combustion gas generator of claim 1 wherein the temperature of the water ranges from about ambient temperature to about 260°F.

55. A hydrocarbon combustion gas generator of claim 54 wherein the temperature of the water ranges from about 212°F to about 250°F.

56. A hydrocarbon combustion gas generator of claim 55 wherein the temperature of the water is about 250°F.

57. A hydrocarbon combustion gas generator of claim 54 wherein the pH of the water ranges from about 8.5 to about 12.7.

58. A hydrocarbon combustion gas generator of claim 1 wherein the hydrocarbon combustion gas generator additionally comprises a means for receiving excess oxidizer that is metered into one or more of the combustion chambers or areas, and wherein the excess oxidizer travels into a different combustion chamber or area from the combustion chamber or area into which it is metered or is released into the atmosphere.

59. A hydrocarbon combustion gas generator of claim 1 wherein the hydrocarbon combustion gas generator additionally comprises, or is connected with, a CO_2 recovery device, apparatus or system, and wherein CO_2 that may be present in the combustion gas exhaust product is captured and prevented from being released into the atmosphere.

60. A hydrocarbon combustion gas generator of claim 1 wherein the hydrocarbon combustion gas generator does not isolate CO_2 from other gases or substances that are present in the combustion gas exhaust product produced by the hydrocarbon combustion gas generator.

61. A hydrocarbon combustion gas generator of claim 1 wherein the hydrocarbon combustion gas generator additionally comprises, or is connected with, a means for permitting the combustion gas exhaust product to produce a steam product that is separate from the superheated steam product or dry saturated steam product.

62. A hydrocarbon combustion gas generator of claim 61 wherein the combustion gas exhaust product travels from the hydrocarbon combustion gas generator into a boiler or exhaust heat recovery steam generator.

63. A hydrocarbon combustion gas generator of claim 62 wherein the boiler or exhaust heat recovery steam generator produces a steam product having a steam purity that is below about 1.0 ppm total solids.

64. A hydrocarbon combustion gas generator of claim 63 wherein the boiler or exhaust heat recovery steam generator produces a steam product having a steam purity that is below about 0.1 ppm total solids.

65. A hydrocarbon combustion gas generator of claim 41 wherein the first combustion chamber has an ability to permit a first combustion of the fuel to occur therein at a temperature ranging from about 1,200°F to about 5,800°F, at a pressure ranging from about 500 to about 1,500 psig and during a period of time ranging from about 0.025 to about 10 seconds, wherein the second combustion chamber has an ability to permit a second combustion of the fuel to occur therein at a temperature ranging from about 3,000°F to about 5,800°F, at a pressure ranging from about 300 to about 1,500 psig and during

a period of time ranging from about 0.025 to about 10 seconds, and wherein the third combustion area has an ability to permit a third combustion of the fuel to occur therein at a temperature ranging from about 3,000°F to about 5,800°F, at a pressure ranging from about 300 to about 1,500 psig and during a period of time ranging from about 0.025 to about 10 seconds.

66. A hydrocarbon combustion gas generator of claim 65 wherein during an operation of the hydrocarbon combustion gas generator the first combustion chamber has a temperature ranging from about 2,600°F to about 2,800°F and a pressure ranging from about 600 to about 900 psig, and permits the fuel to be present therein for a period of time ranging from about 0.025 to about 10 seconds, resulting in a combustion of from about 20% to about 70% of the fuel, the second combustion chamber or area has a temperature ranging from about 4,000°F to about 4,500°F and a pressure ranging from about 500 to about 1,000 psig, and permits an incomplete combustion product entering therein from the first combustion chamber to be present therein for a period of time ranging from about 0.025 to about 10 seconds, wherein the combustion reaction in the second combustion chamber or area is from about 85% to about 95% of a stoichiometric combustion, and the third combustion area has a temperature ranging from about 4,500°F to about 5,500°F and a pressure ranging from about 500 to about 900 psig, and permits an incomplete combustion product entering therein from the second combustion chamber or area to be present therein for a period of time ranging from about 0.025 to about 10 seconds, wherein a stoichiometric combustion reaction occurs in the third combustion chamber or area.

67. A hydrocarbon combustion gas generator of claim 41 wherein the hydrocarbon combustion gas generator combusts from about 20% to about 70% of the fuel in the first combustion chamber, from about 20% to about 70% of the remaining fuel in the second combustion chamber or area and from about 50% to about 100% of the remaining fuel in the third combustion area.

68. A hydrocarbon combustion gas generator of claim 67 wherein the hydrocarbon combustion gas generator combusts about 50% of the fuel in the first combustion chamber, about 40% of the remaining fuel in the second combustion chamber or area and from about 95% to about 100% of the remaining fuel in the third combustion area.

69. A hydrocarbon combustion gas generator of claim 68 wherein the hydrocarbon combustion gas generator combusts about 100% of the remaining fuel in the third combustion area.

70. A hydrocarbon combustion gas generator of claim 41 wherein an incomplete combustion product that is produced in the first combustion chamber enters into the second combustion chamber or area at a linear velocity of more than about 3284 feet per second pounds, and wherein an incomplete combustion product that is produced in the second combustion chamber or area enters into the third combustion chamber or area at a linear velocity of more than about 0.178 feet per second pounds.

71. A hydrocarbon combustion gas generator of claim 1 wherein the combustion gas exhaust product that exits from the hydrocarbon combustion gas generator is maintained at a temperature of about 230°F or higher.

72. A hydrocarbon combustion gas generator of claim 1 wherein the hydrocarbon combustion gas generator produces a superheated steam product that does not contain more than about 76 weight percent of dry saturated steam, and wherein the remainder of the superheated steam product is superheated steam.

73. A hydrocarbon combustion gas generator of claim 72 wherein the hydrocarbon combustion gas generator produces a superheated steam product that does not contain more than about 30 weight percent of dry saturated steam, and wherein the remainder of the superheated steam product is superheated steam.

74. A hydrocarbon combustion gas generator of claim 73 wherein the hydrocarbon combustion gas generator produces a superheated steam product containing about 100 weight percent superheated steam.

75. A hydrocarbon combustion gas generator of claim 1 wherein the hydrocarbon combustion gas generator produces one or more superheated steam products or dry saturated steam products that are under a pressure ranging from about 300 psig to about 4,500 psig, and that have a temperature ranging from about 500°F to about 1,150 °F.

76. A hydrocarbon combustion gas generator of claim 75 wherein the superheated steam products or dry saturated steam products are under a pressure ranging from about 2,600 psig to about 3,600 psig, and have a temperature ranging from about 750°F to about 1,100°F.

77. A hydrocarbon combustion gas generator of claim 1 wherein the hydrocarbon combustion gas generator does not have any components that move during an operation of the hydrocarbon combustion gas generator.

78. A hydrocarbon combustion gas generator of claim 1 wherein the hydrocarbon combustion gas generator additionally comprises one or more separate means for receiving at least one fuel that contains the element hydrogen, the element carbon or the elements hydrogen and carbon, wherein the fuel may be a solid, liquid or gaseous fuel derived from a waste material, and wherein the fuel may contain sulfur or nitrogen, and wherein a dual, but separated, entry of more than one fuel is permitted into the hydrocarbon combustion gas generator.

79. A hydrocarbon combustion gas generator of claim 78 wherein the hydrocarbon combustion gas generator has an ability to permit two or more compatible or incompatible fuels that are present in a same or a different state to be separately metered into the first combustion chamber of the hydrocarbon combustion gas generator.

80. A hydrocarbon combustion gas generator of claim 79 wherein the hydrocarbon combustion gas generator has an ability to permit two or more incompatible fuels that are present in a different state to be separately metered into the first combustion chamber of the hydrocarbon combustion gas generator.

81. A hydrocarbon combustion gas generator of claim 1 wherein the means for receiving fuel is a fuel inlet coupled with a source of fuel, wherein the means for receiving oxidizer is an oxidizer inlet coupled with a source of oxidizer, wherein the means for metering fuel into the first combustion chamber is a plurality of fuel port orifices, wherein the means for metering oxidizer into the first combustion chamber is an oxidizer manifold containing a plurality of oxidizer injector orifices, wherein the means for igniting the fuel and the oxidizer is an electronic igniter system, wherein the means for metering additional oxidizer into the second combustion chamber or area is an oxidizer manifold containing a plurality of oxidizer injector orifices, wherein the means for metering a combustion gas product produced in the first

combustion chamber into the second combustion chamber or area is a plurality of fuel port orifices, wherein the means for the combustion gas exhaust product produced by the hydrocarbon combustion gas generator to exit the hydrocarbon gas generator is an open aft end of the hydrocarbon combustion gas generator, wherein the means for introducing water to the hydrocarbon combustion gas generator is a water inlet coupled to a source of water and wherein the means for the superheated steam product or dry saturated steam product to exit the hydrocarbon combustion gas generator is a superheated steam outlet.

82. A hydrocarbon combustion gas generator of claim 41 wherein the means for metering oxidizer to the third combustion area is an oxidizer manifold containing a plurality of oxidizer orifices and wherein the means for metering a combustion gas exhaust product produced in the second combustion chamber or area into the third combustion area is a plurality of fuel port orifices.

83. A hydrocarbon combustion gas generator of claim 1 wherein the hydrocarbon combustion gas generator has an ability to transform a hazardous material into a non-hazardous material.

84. A hydrocarbon combustion gas generator of claim 83 wherein the hazardous material is the fuel.

85. A hydrocarbon combustion gas generator of claim 84 wherein no other fuels are employed in the hydrocarbon combustion gas generator.

86. A hydrocarbon combustion gas generator of claim 1 wherein the hydrocarbon combustion gas generator is configured in the manner shown in FIG. 1.

87. A hydrocarbon combustion gas generator of claim 1 wherein the hydrocarbon combustion gas generator has a size and characteristics of the hydrocarbon combustion gas generator described in Example 1.

88. A hydrocarbon combustion gas generator of claim 1 wherein the hydrocarbon combustion gas generator is a GG-X1 hydrocarbon combustion gas generator described in Example 7.

89. A hydrocarbon combustion gas generator of claim 1 wherein the combustion gas exhaust product is employed to produce an additional steam product, wherein the additional steam product comprises superheated steam, dry saturated steam or a combination of superheated steam and dry saturated steam, and wherein the additional steam product can be employed to produce electrical power, thereby increasing the amount of electrical power that can be produced by the hydrocarbon combustion gas generator.

90. A hydrocarbon combustion gas generator of claim 1 wherein the hydrocarbon combustion gas generator does not employ any oxidizers that contain nitrogen.

91. A hydrocarbon combustion gas generator of claim 1 wherein the hydrocarbon combustion gas generator does not employ any oxidizers that contain argon.

92. A hydrocarbon combustion gas generator of claim 1 wherein the hydrocarbon combustion gas generator employs one or more oxidizers that have a purity ranging from about 90% to about 100%.

93. A hydrocarbon combustion gas generator of claim 92 wherein the hydrocarbon combustion gas generator employs one or more oxidizers that have a purity ranging from about 95% to about 100%.

94. A hydrocarbon combustion gas generator of claim 93 wherein the hydrocarbon combustion gas generator employs one or more oxidizers that have a purity of about 100%.

95. A hydrocarbon combustion gas generator of claim 1 wherein the oxidizer is a liquid oxidizer.

96. A hydrocarbon combustion gas generator of claim 1 wherein the oxidizer is LOX, O, O_3, H_2O_2 or HAN.

97. A hydrocarbon combustion gas generator of claim 96 wherein the oxidizer is LOX or H_2O_2.

98. A hydrocarbon combustion gas generator of claim 97 wherein the oxidizer is LOX.

99. A hydrocarbon combustion gas generator of claim 1 wherein all of the oxidizer that enters into the hydrocarbon combustion gas generator from outside of the hydrocarbon combustion gas generator is at a temperature ranging from about -297°F to about 80°F.

100. A hydrocarbon combustion gas generator of claim 99 wherein all of the oxidizer that enters into the hydrocarbon combustion gas generator from outside of the hydrocarbon combustion gas generator is at a temperature ranging from about -180°F to about -150°F.

101. A hydrocarbon combustion gas generator of claim 100 wherein all of the oxidizer that enters into the hydrocarbon combustion gas generator from outside of the hydrocarbon combustion gas generator is at a temperature of about -50°F.

102. A hydrocarbon combustion gas generator of claim 1 wherein the hydrocarbon combustion gas generator employs a fuel having an energy value ranging from about 3,000 to about 55,000 Btus per pound.

103. A hydrocarbon combustion gas generator of claim 102 wherein the hydrocarbon combustion gas generator employs a fuel having an energy value ranging from about 8,000 to about 40,000 Btus per pound.

104. A hydrocarbon combustion gas generator of claim 103 wherein the hydrocarbon combustion gas generator employs a fuel having an energy value of about 32,000 Btus per pound.

105. A hydrocarbon combustion gas generator of claim 1 wherein the hydrocarbon combustion gas generator employs only one or more fuels or fuel components that do not: (a) contain substances or elements that can form, or can combine with other substances or elements to form, environmental pollutants or hazardous materials; (b) contain metals, metal parts or elements listed in the Periodic Table of Elements that are environmental pollutants or hazardous materials; or (c) produce particulate matter when combusted.

106. A hydrocarbon combustion gas generator of claim 1 wherein the hydrocarbon combustion gas generator has an ability to produce the superheated steam product or dry saturated steam product using only one or more fuels or fuel components that are in the form of a solid, wherein the fuels or fuel components have a size that permits them to be metered into the first combustion chamber of the hydrocarbon combustion gas generator.

107. A hydrocarbon combustion gas generator of claim 106 wherein the one or more fuels or fuel components have a particle size ranging from about 31 to about 2,300 microns.

108. A hydrocarbon combustion gas generator of claim 107 wherein the one or more fuels or fuel components have a particle size ranging from about 37 to about 2,000 microns.

109. A hydrocarbon combustion gas generator of claim 108 wherein the one or more fuels or fuel components have a particle size ranging from about 149 to about 400 microns.

110. A hydrocarbon combustion gas generator of claim 106 wherein the one or more fuels or fuel components have the following particle size distribution:

U.S. Mesh	Inches	Microns	Percent Distribution
10	0.0787	2,000	0-5%
12	0.0661	1,680	0-5%
14	0.0555	1410	0-15%
16	0.0469	1190	0-15%
18	0.0394	1000	0-25%
20	0.0331	841	0-45%
25	0.028	707	0-50%
30	0.0232	595	0-50%
35	0.0197	500	0-50%
40	0.0165	400	0-50%
45	0.0138	354	0-99%
50	0.0117	297	0-99%
60	0.0098	250	0-99%
70	0.0083	210	0-99%
80	0.007	177	0-99%
100	0.0059	149	0-99%
120	0.0049	125	0-99%
140	0.0041	105	0-99%
170	0.0035	88	0-99%
200	0.0029	74	0-99%
230	0.0024	63	0-99%
270	0.0021	53	0-99%
325	0.0017	44	0-75%
400	0.0015	37	0-50%

111. A hydrocarbon combustion gas generator of claim 110 wherein the one or more fuels or fuel components have the following particle size distribution:

U.S. Mesh	Inches	Microns	Percent Distribution
40	0.0165	400	1%
45	0.0138	354	2%
50	0.0117	297	5%
60	0.0098	250	5-10%
70	0.0083	210	35-40%
80	0.007	177	35-40%
100	0.0059	149	10%

112. A hydrocarbon combustion gas generator of claim 106 wherein the fuel is tire rubber having a size of about 30 mesh.

113. A hydrocarbon combustion gas generator of claim 106 wherein one or more additional fuels or fuel components are employed, and wherein the additional fuels or fuel components are a liquid or gaseous fuel.

114. A hydrocarbon combustion gas generator of claim 106 wherein the hydrocarbon combustion gas generator has an ability to produce the superheated steam product or dry saturated steam product using one or more plastic resins.

115. A hydrocarbon combustion gas generator of claim 114 wherein the plastic resins are PET, HDPE, PS, LDPE, PP, PETE, PEF, PVC or mixed plastics.

116. A hydrocarbon combustion gas generator of claim 1 wherein the hydrocarbon combustion gas generator has an ability to produce the superheated steam product or dry saturated steam product using a non-waste material.

117. A hydrocarbon combustion gas generator of claim 116 wherein the non-waste material is wood, coal, hydrogen, methane, ethane, butane, propane, natural gas, gasoline, diesel fuel, kerosene, fuel oil, methanol, alcohol, a product that contains plastic, mixed plastic or plastic resin, or a combination thereof, and wherein the non-waste material has a size that permits it to be metered into the first combustion chamber of the hydrocarbon combustion gas generator.

118. A hydrocarbon combustion gas generator of claim 117 wherein the non-waste material is natural gas, methanol or kerosene, and wherein the oxidizer is LOX.

119. A hydrocarbon combustion gas generator of claim 1 wherein the hydrocarbon combustion gas generator has an ability to produce the superheated steam product or dry saturated steam product using a low grade fuel.

120. A hydrocarbon combustion gas generator of claim 1 wherein the hydrocarbon combustion gas generator has an ability to produce the superheated steam product or dry saturated steam product using a waste material as a fuel.

121. A hydrocarbon combustion gas generator of claim 120 wherein the waste material is non-metal components of scrap tires, Tire Derived Fuel, Process Engineered Fuel, Refuse Derived Fuel, carpeting, residential waste, commercial waste, municipal waste, industrial waste, used cooking oil, used manufacturing oil, used motor oil, wood waste, agricultural waste, human excrement, paper waste, paper mill waste, lumber mill waste, hog fuel, sugar mill waste, bagasse, oil-refinery residue, automobile industry waste, harbor-dredged muck, or waste items containing polyethylene, polystyrene, polyethylene terephthalate, high-density polyethylene, low-density polyethylene, polypropylene or polyvinyl chloride individually or in a mixture, or a combination thereof, and wherein the waste material has a size

that permits it to be metered into the first combustion chamber of the hydrocarbon combustion gas generator.

122. A hydrocarbon combustion gas generator of claim 121 wherein the fuel contains 100% non-metal scrap tire parts, 100% plastic waste, 100% carpet waste, 100% textile waste or a blend of any weight percents of the foregoing materials.

123. A hydrocarbon combustion gas generator of claim 121 wherein the fuel is carpet, and wherein the carpet comprises from about 0 to about 35% of nylon 6 or nylon 6,6, from about 0 to about 55% of polypropylene, from about 0 to about 35% of polyester, from about 0 to about 18% of polyethylene, from about 0 to about 36% of ethylene-vinyl acetate copolymer and from about 0 to about 60% of filler, and wherein the weight percent of the carpet is 100.

124. A hydrocarbon combustion gas generator of claim 122 wherein the plastic waste is polyethylene teraphthalate beverage bottles or containers or high-density polyethylene milk jugs, detergent bottles or containers.

125. A hydrocarbon combustion gas generator of claim 1 wherein the fuel is not hydrogen, methane, propane, purified natural gas or a light alcohol.

126. A hydrocarbon combustion gas generator of claim 1 wherein the fuel is EF-1, EF-2, EF-3, EF-4, EF-5, EF-6, EF-7, EF-8, EF-9, EF-10, EF-11, EF-12, EF-13, EF-14, EF-15, EF-16, EF-17 or EF-18.

127. A hydrocarbon combustion gas generator of claim 1 wherein the combustion gas exhaust product contains a reduced quantity of particulate matter and other dirty substances in comparison with a combustion gas exhaust product produced under the same conditions and using the same reactants and amounts thereof with the exception that only one combustion of the fuel occurs.

128. A hydrocarbon combustion gas generator of claim 1 wherein the superheated steam product or the dry saturated steam product and the combustion gas exhaust product contain no environmental pollutants or hazardous materials, or contain low quantities of environmental pollutants and hazardous materials.

129. A hydrocarbon combustion gas generator of claim 128 wherein the hydrocarbon combustion gas generator does not produce any hazardous materials, and wherein the only environmental pollutant produced by the hydrocarbon combustion gas generator is CO_2.

130. A hydrocarbon combustion gas generator of claim 1 wherein the hydrocarbon combustion gas generator combusts from about 97% to about 100% of the fuel.

131. A hydrocarbon combustion gas generator of claim 130 wherein the hydrocarbon combustion gas generator combusts about 100% of the fuel.

132. A hydrocarbon combustion gas generator of claim 1 wherein the superheated steam product or the dry saturated steam product contains about 0 weight percent of environmental pollutants or hazardous materials and the combustion gas exhaust product is environmentally clean.

133. A hydrocarbon combustion gas generator of claim 132 wherein the combustion gas exhaust product contains about 0 weight percent hazardous materials, and no environmental pollutants other than CO_2, and wherein the CO_2 is present in an amount less than about 40 weight percent.

134. A hydrocarbon combustion gas generator of claim 132 wherein the combustion gas exhaust product contains less than about 30 weight percent of environmental pollutants and hazardous materials.

135. A hydrocarbon combustion gas generator of claim 134 wherein the combustion gas exhaust product contains less than about 20 weight percent of environmental pollutants and hazardous materials.

136. A hydrocarbon combustion gas generator of claim 135 wherein the combustion gas exhaust product contains less than about 10 weight percent of environmental pollutants and hazardous materials.

137. A hydrocarbon combustion gas generator of claim 136 wherein the combustion gas exhaust product contains less than about 5 weight percent of environmental pollutants and hazardous materials.

138. A hydrocarbon combustion gas generator of claim 137 wherein the combustion gas exhaust product contains about 0 weight percent of environmental pollutants and hazardous materials.

139. A hydrocarbon combustion gas generator of claim 1 wherein the hydrocarbon combustion gas generator produces a smaller quantity of environmental pollutants or hazardous materials in comparison with fuel-burning processes and apparatuses for producing steam or electrical power that employ air, or that permit air to come into contact with fuel, oxidizer or water employed therein, with combustion gas products produced thereby, or with components thereof.

140. A hydrocarbon combustion gas generator of claim 139 wherein the quantity of environmental pollutants or hazardous materials is reduced by at least about 50%.

141. A hydrocarbon combustion gas generator of claim 140 wherein the quantity of environmental pollutants or hazardous materials is reduced by at least about 75%.

142. A hydrocarbon combustion gas generator of claim 141 wherein the quantity of environmental pollutants or hazardous materials is reduced by at least about 90%.

143. A hydrocarbon combustion gas generator of claim 139 wherein the hydrocarbon combustion gas generator produces a smaller quantity of the criteria air pollutants CO, NOx, SO_2 or particulate matter in comparison

with fuel-burning processes and apparatuses for producing steam or electrical power that employ air, or that permit air to come into contact with fuel, oxidizer or water employed therein, with combustion gas products produced thereby, or with components thereof.

144. A hydrocarbon combustion gas generator of claim 139 wherein the hydrocarbon combustion gas generator produces a smaller quantity of CO_2 in comparison with fuel-burning processes and apparatuses for producing steam or electrical power that employ air, or that permit air to come into contact with fuel, oxidizer or water employed therein, with combustion gas products produced thereby, or with components thereof.

145. A hydrocarbon combustion gas generator of claim 139 wherein the hydrocarbon combustion gas generator produces smaller quantities of NOx or SOx in comparison with fuel-burning processes and apparatuses for producing steam or electrical power that employ air, or that permit air to come into contact with fuel, oxidizer or water employed therein, with combustion gas products produced thereby, or with components thereof.

146. A hydrocarbon combustion gas generator of claim 1 wherein, in comparison with a conventional coal-burning power plant that produces the same amount of energy or electrical power, the hydrocarbon combustion gas generator reduces the emissions of environmental pollutants or hazardous materials by at least about 60 percent.

147. A hydrocarbon combustion gas generator of claim 146 wherein the hydrocarbon combustion gas generator reduces the emissions of environmental pollutants or hazardous materials by at least about 80 percent.

148. A hydrocarbon combustion gas generator of claim 147 wherein the hydrocarbon combustion gas generator reduces the emissions of environmental pollutants or hazardous materials by from about 95 to about 100 percent.

149. A hydrocarbon combustion gas generator of claim 1 wherein the combustion gas exhaust product contains no, or negligible quantities of, mercury, SO, SO_2, SO_3, NO, NO_2, N_2O, CO, CH_4, HCl or dioxin.

150. A hydrocarbon combustion gas generator of claim 1 wherein the hydrocarbon combustion gas generator does not contain additional or separate pollution control equipment.

151. A hydrocarbon combustion gas generator comprising in combination:

(a) a means for receiving at least one fuel that contains the element hydrogen, the element carbon or the elements hydrogen and carbon, wherein the fuel may be a solid, liquid or gaseous fuel derived from a waste material, and wherein the fuel may contain sulfur or nitrogen;

(b) a means for receiving a liquid or gaseous oxidizer, wherein the oxidizer is not air;

(c) a means for metering the fuel into a first combustion chamber, wherein the fuel is at a temperature, at a pressure, and in an oxidizer/fuel mixture ratio with the oxidizer that can cause an incomplete combustion of the fuel in the first combustion chamber upon its ignition resulting in the production of an incomplete combustion product;

(d) a means for metering the oxidizer into the first combustion chamber, wherein the oxidizer is at a temperature, at a pressure, and in an oxidizer/fuel mixture ratio with the fuel that can cause an incomplete combustion of the fuel in the first combustion chamber upon its ignition resulting in the production of an incomplete combustion product;

(e) a first combustion chamber in which a first combustion of the fuel and the oxidizer can occur resulting in the production of an incomplete combustion product, wherein the first combustion chamber has one or more walls;

(f) a means for initiating a combustion of the fuel and the oxidizer that are metered into the first combustion chamber;

(g) a means for metering additional oxidizer into a second combustion chamber or area, wherein the additional oxidizer is at a temperature, at a pressure, and in an oxidizer/fuel mixture ratio with fuel present in the incomplete combustion product produced in the first combustion chamber that enters into the second combustion chamber or area that can cause either a second incomplete combustion of the fuel present in the second combustion chamber or area, or the complete combustion of the fuel present in the second combustion chamber or area;

(h) a means for metering the incomplete combustion product produced in the first combustion chamber into the second combustion chamber or area, wherein the incomplete combustion product produced in the first combustion chamber is at a temperature, at a pressure, and in an oxidizer/fuel mixture ratio with the additional oxidizer that enters into the second combustion chamber or area that can cause either a second incomplete combustion of the fuel present in the incomplete combustion product that enters into the second combustion chamber or area, or the complete combustion of the fuel present in the incomplete combustion product that enters into the second combustion chamber or area;

(i) a second combustion chamber or area in which a second combustion of the fuel can occur, wherein the second combustion chamber or area has one or more walls, and wherein the second combustion of the fuel can be either: (1) an incomplete combustion, wherein an incomplete combustion product is produced and enters into a third combustion chamber or area; or (2) a complete combustion, wherein a combustion gas exhaust product is produced and can exit the hydrocarbon combustion gas generator;

(j) optionally, a means for metering additional oxidizer into a third combustion chamber or area, wherein the additional oxidizer is at a temperature, at a pressure, and in an oxidizer/fuel mixture ratio with fuel present in an incomplete combustion product produced in the second combustion chamber or area that enters into the third combustion chamber

or area that can cause an incomplete or complete combustion of the fuel present in the third combustion chamber or area;

(k) optionally, a means for metering an incomplete combustion product produced in the second combustion chamber or area into the third combustion chamber or area, wherein the incomplete combustion product produced in the second combustion chamber or area is at a temperature, at a pressure, and in an oxidizer/fuel mixture ratio with the additional oxidizer that enters into the third combustion chamber or area that can cause an incomplete or complete combustion of the fuel present in the incomplete combustion product that enters into the third combustion chamber or area;

(l) optionally, a third combustion chamber or area in which a third combustion of the fuel can occur, wherein the third combustion of the fuel is an incomplete or complete combustion, wherein if the combustion is a complete combustion a combustion gas exhaust product is produced and can exit the hydrocarbon combustion gas generator, and wherein the third combustion area has one or more walls; and

(m) a means for a combustion gas exhaust product produced by the hydrocarbon combustion gas generator to exit the hydrocarbon combustion gas generator, wherein the combustion gas exhaust product does not come into contact with a turbine or other electrical power-generating device;

wherein the hydrocarbon combustion gas generator has an ability to transform hazardous materials into non-hazardous materials.

152. A process for producing a superheated steam product comprising a combination of the following steps:

(a) metering at least one fuel including the element hydrogen, the element carbon or the elements hydrogen and carbon and a liquid or gaseous oxidizer into a first combustion chamber of a hydrocarbon combustion gas generator, wherein the fuel may be a solid, liquid or gaseous fuel derived from a waste material, and may contain sulfur or nitrogen, wherein the oxidizer is not air, wherein the fuel and the oxidizer are at a temperature, at a pressure, and in an oxidizer/fuel mixture ratio that can cause an incomplete combustion of the fuel in the first combustion chamber upon its ignition resulting in the production of an incomplete combustion product, and wherein the hydrocarbon combustion gas generator comprises:

(1) a means for receiving at least one fuel that contains the element hydrogen, the element carbon or the elements hydrogen and carbon;

(2) a means for receiving a liquid or gaseous oxidizer;

(3) a means for metering the fuel into the first combustion chamber;

(4) a means for metering the oxidizer into the first combustion chamber;

(5) a first combustion chamber in which a first combustion of the fuel can occur, wherein the first combustion chamber has one or more walls;

(6) a means for initiating a combustion of the fuel that is metered into the first combustion chamber;

(7) a means for metering additional oxidizer into a second combustion chamber or area;

(8) a means for metering an incomplete combustion product produced in the first combustion chamber into the second combustion chamber or area;

(9) a second combustion chamber or area in which a second combustion of the fuel can occur, wherein the second combustion chamber or area has one or more walls;

(10) optionally, a means for metering additional oxidizer into a third combustion chamber or area;

(11) optionally, a means for metering an incomplete combustion product produced in the second combustion chamber or area into a third combustion chamber or area;

(12) optionally, a third combustion chamber or area in which a third combustion of the fuel can occur, wherein the third combustion area has one or more walls;

(13) a means for a combustion exhaust gas product produced by the hydrocarbon combustion gas generator to exit the hydrocarbon combustion gas generator;

(14) a means for introducing water to one or more areas or components of the hydrocarbon combustion gas generator that are positioned in contact with, or in a sufficiently close proximity to, one or more exterior surfaces of one or more walls of one or more combustion chambers or areas to permit at least some of the water to become converted into a superheated steam product or dry saturated steam product; and

(15) a means for the superheated steam product or dry saturated steam product to exit the hydrocarbon combustion gas generator separately from a combustion gas exhaust product produced by the hydrocarbon combustion gas generator;

(b) initiating a combustion of the fuel that is present in the first combustion chamber;

(c) permitting the combustion of the fuel that is present in the first combustion chamber to occur for a period of time that permits the production of an incomplete combustion product;

(d) permitting the incomplete combustion product produced in the first combustion chamber to enter into a second combustion chamber or area of the hydrocarbon combustion gas generator;

(e) metering additional oxidizer into the second combustion chamber or area of the hydrocarbon combustion gas generator, wherein the additional oxidizer and the fuel that is present in the incomplete combustion product that enters into the second combustion chamber or area are at a temperature, at a pressure and in an oxidizer/fuel mixture ratio that causes either: (1) an incomplete combustion of the fuel to occur in the second combustion chamber or area, wherein an incomplete combustion product is produced and is permitted to enter into a third combustion chamber or area of the hydrocarbon combustion gas generator; or (2) a complete combustion of the fuel to occur in the second combustion chamber or area, wherein a combustion gas exhaust product is produced and can exit the hydrocarbon combustion gas generator;

(f) if an incomplete combustion product is produced in the second combustion chamber or area and is permitted to enter into the third combustion chamber or area of the hydrocarbon combustion gas generator, metering additional oxidizer into the third combustion chamber or area, wherein the additional oxidizer and the fuel present in the incomplete combustion product that enters into the third combustion chamber or area are at a temperature, at a pressure and in an oxidizer/fuel mixture ratio that can cause an incomplete or complete combustion of the fuel to occur in the third combustion chamber or area and, if the combustion is a complete combustion, the production of a combustion gas exhaust product;

(g) if a combustion exhaust product is produced in a third combustion chamber or area of the hydrocarbon combustion gas generator, permitting the combustion gas exhaust product to exit the hydrocarbon combustion gas generator;

(h) introducing water to one or more areas or components of the hydrocarbon combustion gas generator that are positioned in contact with, or in a sufficiently close proximity to, one or more exterior surfaces of one or more walls of one or more combustion chambers or areas to permit at least some of the water to become converted into a superheated steam product or dry saturated steam product, wherein the water does not come into contact with any combustion gases produced by the hydrocarbon combustion gas generator, wherein the superheated steam product or dry saturated steam product is maintained separate from the combustion gas exhaust product that is produced by the hydrocarbon combustion gas generator and wherein the superheated steam product or dry saturated steam product can be employed to produce electrical power when introduced into an electrical power-generating device; and

(i) permitting the superheated steam product or dry saturated steam product to exit the hydrocarbon combustion gas generator separately from the combustion gas exhaust product produced by the hydrocarbon combustion gas generator;

wherein the combustion gas exhaust product produced by the hydrocarbon combustion gas generator does not come into contact with a turbine or other electrical power-generating device.

153. A process of claim 152 wherein air is not permitted to come into contact with the fuel, the oxidizer or the water, or to enter into the hydrocarbon combustion gas generator.

154. A process of claim 152 wherein water is not permitted to come into contact with the fuel, with the oxidizer, with any combustion gases produced by the hydrocarbon combustion gas generator or with the combustion gas exhaust product, and wherein water is not permitted to enter into any of the combustion chambers or areas of the hydrocarbon combustion gas generator.

155. A process of claim 152 wherein from about 1 to about 600 megawatts of electrical power can be produced per day.

156. A process of claim 152 wherein the hydrocarbon combustion gas generator is connected with an electrical power-generating device or system, wherein the superheated steam product or dry saturated steam product travels into the electrical power-generating apparatus or system and wherein the superheated steam product or dry saturated steam product is used to produce electrical power.

157. A process of claim 156 wherein the electrical power-generating device or system is a turbine.

158. A process of claim 156 wherein the superheated steam product and dry saturated steam product do not cause corrosion or damage to components of the electrical power-generating device or system.

159. A process of claim 152 wherein the hydrocarbon combustion gas generator is employed in a cogeneration system or plant, a trigeneration system or plant or a quadgeneration system or plant.

160. A process of claim 152 wherein the process can be employed with an electrical-power generating apparatus or system to produce electrical power at a cost of about 1.7 cents per kilowatt-hour or lower.

161. A process of claim 152 wherein the process has a combustion efficiency ranging from about 60% to about 100%.

162. A process of claim 152 wherein the process has a thermal efficiency ranging from about 50% to about 87%.

163. A process of claim 152 wherein the water enters the hydrocarbon combustion gas generator at one or more locations and circulates around, but not in, one or more combustion chambers or areas of the hydrocarbon combustion gas generator.

164. A process of claim 163 wherein water circulates through a plurality of tubes that form one or more tube assemblies.

165. A process of claim 152 wherein the first combustion chamber has an ability to permit a first combustion of the fuel to occur therein at a temperature ranging from about 1,200°F to about 5,800°F, at a pressure ranging from about 500 to about 1,500 psig and during a period of time ranging from about 0.025 to about 10 seconds, wherein the second combustion chamber has an ability to permit a second combustion of the fuel to occur therein at a temperature ranging from about 3,000°F to about 5,800°F, at a pressure ranging from about 300 to about 1,500 psig and during a period of time ranging from about 0.025 to about 10 seconds, and wherein the hydrocarbon combustion gas generator has a third combustion area, and wherein the third combustion area has an ability to permit a third combustion of the fuel to occur therein at a temperature ranging from about 3,000°F to about 5,800°F, at a pressure ranging from about 300 to about 1,500 psig and during a period of time ranging from about 0.025 to about 10 seconds.

166. A process of claim 165 wherein during an operation of the hydrocarbon combustion gas generator the first combustion chamber has a temperature ranging from about 2,600°F to about 2,800°F and a pressure ranging from about 600 to about 900 psig, and permits the fuel to be present therein for a period of time ranging from about 0.025 to about 10 seconds, resulting in a combustion of from about 20% to about 70% of the fuel, the second combustion chamber or area has a temperature ranging from about 4,000°F to about 4,500°F and a pressure ranging from about 500 to about 1,000 psig, and

permits an incomplete combustion product entering therein from the first combustion chamber to be present therein for a period of time ranging from about 0.025 to about 10 seconds, wherein the combustion reaction in the second combustion chamber or area is from about 85% to about 95% of a stoichiometric combustion, and the third combustion area has a temperature ranging from about 4,500°F to about 5,500°F and a pressure ranging from about 500 to about 900 psig, and permits an incomplete combustion product entering therein from the second combustion chamber or area to be present therein for a period of time ranging from about 0.025 to about 10 seconds, wherein a stoichiometric combustion reaction occurs in the third combustion chamber or area.

167. A process of claim 152 wherein the hydrocarbon combustion gas generator combusts from about 20% to about 70% of the fuel in the first combustion chamber, from about 20% to about 70% of the remaining fuel in the second combustion chamber or area and from about 50% to about 100% of the remaining fuel in the third combustion area.

168. A process of claim 167 wherein the hydrocarbon combustion gas generator combusts about 50% of the fuel in the first combustion chamber, about 40% of the remaining fuel in the second combustion chamber or area and from about 95% to about 100% of the remaining fuel in the third combustion area.

169. A process of claim 152 wherein the process produces a superheated steam product that does not contain more than about 76 weight percent of dry saturated steam, and wherein the remainder of the superheated steam product is superheated steam.

170. A process of claim 152 wherein the process has an ability to transform a hazardous material into a non-hazardous material.

171. A process of claim 170 wherein the combustion gas exhaust product is employed to produce an additional steam product, wherein the additional steam product comprises superheated steam, dry saturated steam or a combination of superheated steam and dry saturated steam, and wherein the additional steam product can be employed to produce electrical power, thereby increasing the amount of electrical power that can be produced by the hydrocarbon combustion gas generator.

172. A process of claim 152 wherein the oxidizer is LOX, O, O_3, H_2O_2 or HAN.

173. A process of claim 172 wherein the oxidizer is LOX or H_2O_2.

174. A process of claim 173 wherein the oxidizer is LOX.

175. A process of claim 174 wherein the process employs a fuel having an energy value ranging from about 3,000 to about 55,000 Btus per pound.

176. A process of claim 175 wherein the process employs a fuel having an energy value ranging from about 8,000 to about 40,000 Btus per pound.

177. A process of claim 176 wherein the process employs only one or more fuels or fuel components that do not: (a) contain substances or elements that can form, or can combine with other substances or elements to form, environmental pollutants or hazardous materials; (b) contain metals, metal parts or elements listed in the Periodic Table of Elements that are environmental pollutants or hazardous materials; or (c) produce particulate matter when combusted.

178. A process of claim 152 wherein the process can produce the superheated steam product or dry saturated steam product using only one or more fuels or fuel components that are in the form of a solid, wherein the fuels or fuel

components have a size that permits them to be metered into the first combustion chamber of the hydrocarbon combustion gas generator.

179. A process of claim 178 wherein the one or more fuels or fuel components have a particle size ranging from about 31 to about 2,300 microns.

180. A process of claim 179 wherein the one or more fuels or fuel components have the following particle size distribution:

U.S. Mesh	Inches	Microns	Percent Distribution
40	0.0165	400	1%
45	0.0138	354	2%
50	0.0117	297	5%
60	0.0098	250	5-10%
70	0.0083	210	35-40%
80	0.007	177	35-40%
100	0.0059	149	10%

181. A process of claim 152 wherein the process can produce the superheated steam product or dry saturated steam product using one or more plastic resins.

182. A process of claim 181 wherein the plastic resins are PET, HDPE, PS, LDPE, PP, PETE, PEF, PVC or mixed plastics.

183. A process of claim 152 wherein the process can produce the superheated steam product or dry saturated steam product using a non-waste material.

184. A process of claim 183 wherein the non-waste material is wood, coal, hydrogen, methane, ethane, butane, propane, natural gas, gasoline, diesel fuel, kerosene, fuel oil, methanol, alcohol, a product that contains plastic, mixed plastic or plastic resin, or a combination thereof, and wherein the non-waste

material has a size that permits it to be metered into the first combustion chamber of the hydrocarbon combustion gas generator.

185. A process of claim 184 wherein the non-waste material is natural gas, methanol or kerosene, and wherein the oxidizer is LOX.

186. A process of claim 185 wherein the process can produce the superheated steam product or dry saturated steam product using a low grade fuel.

187. A process of claim 152 wherein the process can produce the superheated steam product or dry saturated steam product using a waste material as a fuel.

188. A process of claim 187 wherein the waste material is non-metal components of scrap tires, Tire Derived Fuel, Process Engineered Fuel, Refuse Derived Fuel, carpeting, residential waste, commercial waste, municipal waste, industrial waste, used cooking oil, used manufacturing oil, used motor oil, wood waste, agricultural waste, human excrement, paper waste, paper mill waste, lumber mill waste, hog fuel, sugar mill waste, bagasse, oil-refinery residue, automobile industry waste, harbor-dredged muck, waste items containing polyethylene, polystyrene, polyethylene terephthalate, high-density polyethylene, low-density polyethylene, polypropylene or polyvinyl chloride individually or in a mixture, or a combination thereof, and wherein the waste material has a size that permits it to be metered into the first combustion chamber of the hydrocarbon combustion gas generator.

189. A process of claim 188 wherein the fuel contains 100% non-metal scrap tire parts, 100% plastic waste, 100% carpet waste, 100% textile waste or a blend of any weight percents thereof.

190. A process of claim 189 wherein the fuel is carpet, and wherein the carpet comprises from about 0 to about 35% of nylon 6 or nylon 6,6, from about 0 to about 55% of polypropylene, from about 0 to about 35% of polyester, from about 0 to about 18% of polyethylene, from about 0 to about 36% of ethylene-

vinyl acetate copolymer and from about 0 to about 60% of filler, and wherein the weight percent of the carpet is 100.

191. A process of claim 189 wherein the plastic waste is polyethylene teraphthalate beverage bottles or containers or high-density polyethylene milk jugs, detergent bottles or containers.

192. A process of claim 152 wherein the fuel is not hydrogen, methane, propane, purified natural gas or a light alcohol.

193. A process of claim 152 wherein the fuel is EF-1, EF-2, EF-3, EF-4, EF-5, EF-6, EF-7, EF-8, EF-9, EF-10, EF-11, EF-12, EF-13, EF-14, EF-15, EF-16, EF-17 or EF-18.

194. A process of claim 152 wherein the combustion gas exhaust product contains a reduced quantity of particulate matter and other dirty substances in comparison with a combustion gas exhaust product produced under the same conditions and using the same reactants and amounts thereof with the exception that only one combustion of the fuel occurs.

195. A process of claim 152 wherein both the superheated steam product or the dry saturated steam product and the combustion gas exhaust product contain no environmental pollutants or hazardous materials, or contain low quantities of environmental pollutants or hazardous materials.

196. A process of claim 152 wherein the process does not produce any hazardous materials, and wherein the only environmental pollutant produced by the process is CO_2.

197. A process of claim 152 wherein from about 97% to about 100% of the fuel is combusted.

198. A process of claim 197 wherein about 100% of the fuel is combusted.

199. A process of claim 152 wherein the superheated steam product or dry saturated steam product contains about 0 weight percent environmental pollutants or hazardous materials and the combustion gas exhaust product is environmentally clean.

200. A process of claim 199 wherein the combustion gas exhaust product contains about 0 weight percent hazardous materials, and contains no environmental pollutants other than CO_2, and wherein the CO_2 is present in an amount less than about 40 weight percent.

201. A process of claim 200 wherein the combustion gas exhaust product contains less than about 30 weight percent of environmental pollutants and hazardous materials.

202. A process of claim 201 wherein the combustion gas exhaust product contains less than about 20 weight percent of environmental pollutants and hazardous materials.

203. A process of claim 202 wherein the combustion gas exhaust product contains less than about 10 weight percent of environmental pollutants and hazardous materials.

204. A process of claim 203 wherein the combustion gas exhaust product contains less than about 5 weight percent of environmental pollutants and hazardous materials.

205. A process of claim 204 wherein the combustion gas exhaust product contains about 0 weight percent of environmental pollutants and hazardous materials.

206. A process of claim 152 wherein the process produces a smaller quantity of environmental pollutants or hazardous materials in comparison with fuel-burning processes and apparatuses for producing steam or electrical power that employ air, or that permit air to come into contact with fuel, oxidizer or water employed therein, with combustion gas products produced thereby, or with components thereof.

207. A process of claim 206 wherein the quantity of environmental pollutants or hazardous materials is reduced by at least about 50%.

208. A process of claim 207 wherein the quantity of environmental pollutants or hazardous materials is reduced by at least about 75%.

209. A process of claim 208 wherein the quantity of environmental pollutants or hazardous materials is reduced by at least about 90%.

210. A process of claim 152 wherein the process produces a smaller quantity of the criteria air pollutants CO, NOx, SO_2 or particulate matter in comparison with fuel-burning processes and apparatuses for producing steam or electrical power that employ air, or that permit air to come into contact with fuel, oxidizer or water employed therein, with combustion gas products produced thereby, or with components thereof.

211. A process of claim 152 wherein the process produces a smaller quantity of CO_2 in comparison with fuel-burning processes and apparatuses for producing steam or electrical power that employ air, or that permit air to come into contact with fuel, oxidizer or water employed therein, with combustion gas products produced thereby, or with components thereof.

212. A process of claim 152 wherein the process produces smaller quantities of NOx or SOx in comparison with fuel-burning processes and apparatuses for producing steam or electrical power that employ air, or that permit air to come into contact with fuel, oxidizer or water employed therein, with combustion gas products produced thereby, or with components thereof.

213. A process of claim 152 wherein, in comparison with a conventional coal-burning power plant process that produces the same amount of energy or electrical power, the process reduces the emissions of environmental pollutants or hazardous materials by at least about 60 percent.

214. A process of claim 213 wherein the process reduces the emissions of environmental pollutants or hazardous materials by at least about 80 percent.

215. A process of claim 214 wherein the process reduces the emissions of environmental pollutants or hazardous materials by from about 95 to about 100 percent.

216. A process of claim 152 wherein the combustion gas exhaust product contains no, or negligible quantities of, mercury, SO, SO_2, SO_3, NO, NO_2, N_2O, CO, CH_4, HCl or dioxin.

217. A product produced by a hydrocarbon combustion gas generator of claim 1, wherein the product is a superheated steam product or a dry saturated steam product.

218. A product produced in accordance with the method of claim 152, wherein the product is a superheated steam product or a dry saturated steam product.

219. A method for transforming a hazardous material into a non-hazardous material comprising:

(a) metering a hazardous material including the element hydrogen, the element carbon or the elements hydrogen and carbon and a liquid or gaseous oxidizer into a first combustion chamber of a hydrocarbon combustion gas generator, wherein the hazardous material may contain sulfur or nitrogen, may be a solid, a liquid or a gas, and if a solid has a size that permits it to be metered into the first combustion chamber of the hydrocarbon combustion gas generator, wherein the oxidizer is not air, wherein the hazardous material and the oxidizer are at a temperature, at a pressure, and in an oxidizer/hazardous material mixture ratio that can cause an incomplete combustion of the hazardous material in the first combustion chamber upon its ignition resulting in the production of an incomplete combustion product, and wherein the hydrocarbon combustion gas generator comprises:

(1) a means for receiving at least one hazardous material that contains the element hydrogen, the element carbon or the elements hydrogen and carbon;

(2) a means for receiving a liquid or gaseous oxidizer;

(3) a means for metering the hazardous material into the first combustion chamber;

(4) a means for metering the oxidizer into the first combustion chamber;

(5) a first combustion chamber in which a first combustion of the hazardous material can occur, wherein the first combustion chamber has one or more walls;

(6) a means for initiating a combustion of the hazardous material that is metered into the first combustion chamber;

(7) a means for metering additional oxidizer into a second combustion chamber or area;

(8) a means for metering the incomplete combustion product produced in the first combustion chamber into the second combustion chamber or area;

(9) a second combustion chamber or area in which a second combustion of the hazardous material can occur, wherein the second combustion chamber or area has one or more walls;

(10) optionally, a means for metering additional oxidizer into a third combustion chamber or area;

(11) optionally, a means for metering the combustion product produced in the second combustion chamber or area into a third combustion chamber or area;

(12) optionally, a third combustion chamber or area in which a third combustion of the hazardous material can occur, wherein the third combustion chamber or area has one or more walls;

(13) a means for a combustion gas exhaust product produced by the hydrocarbon combustion gas generator to exit the hydrocarbon combustion gas generator;

(14) optionally, a means for introducing water to one or more areas or components of the hydrocarbon combustion gas generator that are positioned in contact with, or in a sufficiently close proximity to, one or more exterior surfaces of one or more walls of one or more combustion chambers or areas to permit at least some of the water to become converted into a superheated steam product or a dry saturated steam product; and

(15) optionally, a means for a superheated steam product or a dry saturated steam product to exit the hydrocarbon combustion gas generator separately from a combustion gas exhaust product produced by the hydrocarbon combustion gas generator;

(b) initiating a combustion of the hazardous material that is present in the first combustion chamber;

(c) permitting the combustion of the hazardous material that is present in the first combustion chamber to occur for a period of time that permits the production of an incomplete combustion product;

(d) permitting the incomplete combustion product produced in the first combustion chamber to enter into a second combustion chamber or area of the hydrocarbon combustion gas generator;

(e) metering additional oxidizer into the second combustion chamber or area of the hydrocarbon combustion gas generator, wherein the additional oxidizer and material that is present in the incomplete combustion product that enters into the second combustion chamber or area are at a temperature, at a pressure and in an oxidizer/material mixture ratio that causes either: (1) an incomplete combustion of the material to occur in the second combustion chamber or area, wherein an incomplete combustion product is produced and is permitted to enter into a third combustion chamber or area of the hydrocarbon combustion gas

generator; or (2) a complete combustion of the material to occur in the second combustion chamber or area, wherein a combustion gas exhaust product is produced and can exit the hydrocarbon combustion gas generator;

(f) if an incomplete combustion product is produced in the second combustion chamber or area and is permitted to enter into a third combustion chamber or area of the hydrocarbon combustion gas generator, metering additional oxidizer into the third combustion chamber or area, wherein the additional oxidizer and the material present in the incomplete combustion product that enters into the third combustion chamber or area are at a temperature, at a pressure and in an oxidizer/material mixture ratio that causes an incomplete or complete combustion of the material to occur in the third combustion chamber or area, and if the combustion is a complete combustion the production of a combustion gas exhaust product;

(g) if a combustion gas exhaust product is produced in a third combustion chamber or area of the hydrocarbon combustion gas generator, permitting the combustion gas exhaust product to exit the hydrocarbon combustion gas generator;

(h) optionally, introducing water to one or more areas or components of the hydrocarbon combustion gas generator that are positioned in contact with, or in a sufficiently close proximity to, one or more exterior surfaces of one or more walls of one or more combustion chambers or areas to permit at least some of the water to become converted into a superheated steam product or a dry saturated steam product, wherein the water does not come into contact with any combustion gases produced by the hydrocarbon combustion gas generator, wherein the superheated steam product or dry saturated steam product is maintained separate from the combustion gas exhaust product that is produced by the hydrocarbon combustion gas generator and wherein the superheated steam product or dry saturated steam product can be employed to

produce electrical power when introduced into an electrical power-generating device; and

(i) optionally, permitting the superheated steam product or dry saturated steam product to exit the hydrocarbon combustion gas generator separately from the combustion gas exhaust product produced by the hydrocarbon combustion gas generator;

wherein the hazardous material becomes transformed into a non-hazardous material.

220. The method of claim 219 wherein the hydrocarbon combustion gas generator has a means for introducing water to one or more areas or components of the hydrocarbon combustion gas generator that are positioned in a sufficiently close proximity to one or more exterior surfaces of one or more walls of one or more combustion chambers or areas to permit at least some of the water to become converted into a superheated steam product or a dry saturated steam product, wherein water is introduced to one or more areas or components of the hydrocarbon combustion gas generator that are positioned in a sufficiently close proximity to one or more exterior surfaces of one or more walls of one or more combustion chambers or areas to permit at least some of the water to become converted into a superheated steam product or a dry saturated steam product, wherein the water does not come into contact with any combustion gas products produced by the hydrocarbon combustion gas generator, wherein the superheated steam product or dry saturated steam product is maintained separate from a combustion gas exhaust product that is produced by the hydrocarbon combustion gas generator and wherein the superheated steam product or dry saturated steam product can be employed to produce electrical power when introduced into an electrical power-generating device.

221. The method of claim 219 wherein the method additionally comprises the metering of a fuel containing the element hydrogen, the element carbon or the elements hydrogen and carbon into the first combustion chamber of the

hydrocarbon combustion gas generator, wherein the fuel may contain sulfur or nitrogen, may be a solid, a liquid or a gas, and if a solid has a size that permits it to be metered into the first combustion chamber of the hydrocarbon combustion gas generator, and may be a waste material, and wherein the hazardous material may or may not contain the elements hydrogen or carbon.

222. The method of claim 219 wherein the hazardous material is an infectious medical waste, an item that has been exposed to an infectious disease, a biological weapon, a chemical warfare agent or a container that has been employed to contain a chemical warfare agent.

223. The method of claim 222 wherein the hazardous material is a nerve agent.

224. The method of claim 223 wherein the nerve agent is VX, Tabun, Sarin, Soman or Mustard Gas.

225. The method of claim 219 wherein the hazardous material functions as a fuel in the method, and wherein no other fuel is employed in the method.

226. The method of claim 221 wherein at least one of the fuels that is additionally passed into the first combustion chamber is a solid, liquid or gaseous waste material.

227. A method of claim 219 wherein no, or low quantities of, environmental pollutants are produced.

228. A method of claim 227 wherein no environmental pollutants are produced.

229. A method for recycling or eliminating waste materials comprising:

(a) metering a waste material including the element hydrogen, the element carbon or the elements hydrogen and carbon and a liquid or gaseous oxidizer into a first combustion chamber of a hydrocarbon combustion gas generator, wherein the waste material may contain sulfur or nitrogen, may be a solid, a liquid or a gas, and if a solid has a size that permits it to be metered into the first combustion chamber of the hydrocarbon combustion gas generator, wherein the oxidizer is not air, wherein the waste material and the oxidizer are at a temperature, at a pressure, and in an oxidizer/waste material mixture ratio that can cause an incomplete combustion of the waste material in the first combustion chamber upon its ignition resulting in the production of an incomplete combustion product, and wherein the hydrocarbon combustion gas generator comprises:

(1) a means for receiving at least one waste material that contains the element hydrogen, the element carbon or the elements hydrogen and carbon;

(2) a means for receiving a liquid or gaseous oxidizer;

(3) a means for metering the waste material into the first combustion chamber;

(4) a means for metering the oxidizer into the first combustion chamber;

(5) a first combustion chamber in which a first combustion of the waste material can occur, wherein the first combustion chamber has one or more walls;

(6) a means for initiating a combustion of the waste material that is metered into the first combustion chamber;

(7) a means for metering additional oxidizer into a second combustion chamber or area;

(8) a means for metering the incomplete combustion product produced in the first combustion chamber into the second combustion chamber or area;

(9) a second combustion chamber or area in which a second combustion of the waste material can occur, wherein the second combustion chamber or area has one or more walls;

(10) optionally, a means for metering additional oxidizer into a third combustion chamber or area;

(11) optionally, a means for metering the combustion product produced in the second combustion chamber or area into a third combustion chamber or area;

(12) optionally, a third combustion chamber or area in which a third combustion of the waste material can occur, wherein the third combustion chamber or area has one or more walls;

(13) a means for a combustion gas exhaust product produced by the hydrocarbon combustion gas generator to exit the hydrocarbon combustion gas generator;

(14) a means for introducing water to one or more areas or components of the hydrocarbon combustion gas generator that are positioned in contact with, or in a sufficiently close proximity to, one or more exterior surfaces of one or more walls of one or more combustion chambers or areas to permit at least some of the water to become converted into a superheated steam product or a dry saturated steam product; and

(15) a means for a superheated steam product or a dry saturated steam product to exit the hydrocarbon combustion gas generator separately from the combustion gas exhaust product produced by the hydrocarbon combustion gas generator;

(b) initiating a combustion of the waste material that is present in the first combustion chamber;

(c) permitting the combustion of the waste material that is present in the first combustion chamber to occur for a period of time that permits the production of an incomplete combustion product;

(d) permitting the incomplete combustion product produced in the first combustion chamber to enter into a second combustion chamber or area of the hydrocarbon combustion gas generator;

(e) metering additional oxidizer into the second combustion chamber or area of the hydrocarbon combustion gas generator, wherein the additional oxidizer and waste material that is present in the incomplete combustion product that enters into the second combustion chamber or area are at a temperature, at a pressure and in an oxidizer/waste material mixture ratio that causes either: (1) an incomplete combustion of the waste material to occur in the second combustion chamber or area, wherein an incomplete combustion product is produced and is permitted to enter into a third combustion chamber or area of the hydrocarbon combustion gas generator; or (2) a complete combustion of the waste material to occur in the second combustion chamber or area, wherein a combustion gas exhaust product is produced and can exit the hydrocarbon combustion gas generator;

(f) if an incomplete combustion product is produced in the second combustion chamber or area and is permitted to enter into a third combustion chamber or area of the hydrocarbon combustion gas generator, metering additional oxidizer into the third combustion chamber or area, wherein the additional oxidizer and the waste material present in the incomplete combustion product that enters into the third combustion chamber or area are at a temperature, at a pressure and in an oxidizer/waste material mixture ratio that causes an incomplete or complete combustion of the waste material to occur in the third combustion chamber or area, and if the combustion is a complete combustion the production of a combustion gas exhaust product;

(g) if a combustion gas exhaust product is produced in a third combustion area of the hydrocarbon combustion gas generator, permitting the combustion gas exhaust product to exit the hydrocarbon combustion gas generator;

(h) introducing water to one or more areas or components of the hydrocarbon combustion gas generator that are positioned in contact with, or in a sufficiently close proximity to, one or more exterior surfaces of one or more walls of one or more combustion chambers or areas to permit at least some of the water to become converted into a superheated steam product or a dry saturated steam product, wherein the water does not come into contact with any combustion gases produced by the hydrocarbon combustion gas generator, wherein the superheated steam product or dry saturated steam product is maintained separate from a combustion gas exhaust product that is produced by the hydrocarbon combustion gas generator and wherein the superheated steam product or dry saturated steam product can be employed to produce electrical power when introduced into an electrical power-generating device; and

(i) permitting the superheated steam product or dry saturated steam product to exit the hydrocarbon combustion gas generator separately from the combustion gas exhaust product produced by the hydrocarbon combustion gas generator;

wherein the waste material is eliminated.

230. A mixture comprising two or more components, wherein the mixture contains the element hydrogen, the element carbon or the elements hydrogen and carbon and has a weight percent of 100, and wherein the two or more components are the following:

(a) from about 0 to about 99 weight percent of carpet;

(b) from about 0 to about 99 weight percent hydrogen;

(c) from about 0 to about 99 weight percent of polystyrene;

(d) from about 0 to about 99 weight percent of polyethylene terephthalate;

(e) from about 0 to about 99 weight percent of polyester polyethylene terephthalate;

(f) from about 0 to about 99 weight percent of high-density polyethylene;

(g) from about 0 to about 99 weight percent of low-density polyethylene;

(h) from about 0 to about 99 weight percent of polypropylene;

(i) from about 0 to about 99 weight percent of polyurethane;

(j) from about 0 to about 99 weight percent Nylon 6,6;

(k) from about 0 to about 99 weight percent Nylon 6;

(l) from about 0 to about 99 weight percent polyvinyl chloride; and

(m) from about 0 to about 99 weight percent tire rubber;

wherein the mixture has an ability to function as a fuel in a hydrocarbon combustion gas generator of claim 1.

231. A mixture of claim 230 wherein the mixture comprises:

(a) from about 5 to about 60 weight percent of carpet;

(b) from about 0 to about 38 weight percent hydrogen;

(c) from about 0 to about 20 weight percent of polystyrene;

(d) from about 0 to about 50 weight percent of polyethylene terephthalate;

(e) from about 0 to about 50 weight percent of polyester polyethylene terephthalate;

(f) from about 4 to about 70 weight percent of high-density polyethylene;

(g) from about 0 to about 25 weight percent of low-density polyethylene;

(h) from about 0 to about 60 weight percent of polypropylene;

(i) from about 0 to about 30 weight percent of polyurethane;

(j) from about 0 to about 10 weight percent Nylon 6,6;

(k) from about 0 to about 5 weight percent Nylon 6;

(l) from about 0 to about 10 weight percent polyvinyl chloride; and

(m) from about 0 to about 30 weight percent tire rubber.

232. A mixture of claim 230 wherein the mixture is EF-1 fuel.

233. A mixture of claim 230 wherein the mixture is EF-2 fuel.

234. A mixture of claim 230 wherein the mixture is EF-3 fuel.

235. A mixture of claim 230 wherein the mixture is EF-4 fuel.

236. A mixture of claim 230 wherein the mixture is EF-5 fuel.

237. A mixture of claim 230 wherein the mixture is EF-6 fuel.

238. A mixture of claim 230 wherein the mixture is EF-7 fuel.

239. A mixture of claim 230 wherein the mixture is EF-8 fuel.

240. A mixture of claim 230 wherein the mixture is EF-9 fuel.

241. A mixture of claim 230 wherein the mixture is EF-10 fuel.

242. A mixture of claim 230 wherein the mixture is EF-11 fuel.

243. A mixture of claim 230 wherein the mixture is EF-12 fuel.

244. A mixture of claim 230 wherein the mixture is EF-13 fuel.

245. A mixture of claim 230 wherein the mixture is EF-14 fuel.

246. A mixture of claim 230 wherein the mixture is EF-15 fuel.

247. A mixture of claim 230 wherein the mixture is EF-16 fuel.

248. A mixture of claim 230 wherein the mixture is EF-17 fuel.

249. A mixture of claim 230 wherein the mixture is EF-18 fuel.

250. A mixture of claim 230 wherein the mixture does not contain sulfur or nitrogen.

251. A mixture of claim 230 having particle sizes ranging from about 37 to about 2,000 microns.

252. A mixture of claim 251 having particle sizes ranging from about 149 to about 400 microns.

253. A mixture of claim 230 having the following particle sizes and weight percent distribution:

Microns	Weight Percent Distribution
about 400	about 1%
about 354	about 2%
about 297	about 5%
about 250	about 5-10%
about 210	about 35-40%
about 177	about 35-40%
about 149	about 10%

254. A method for producing a mixture comprising:

(a) mixing two or more solid, liquid or gaseous materials together to produce a mixture, wherein the mixture contains the element hydrogen, the element carbon or the elements hydrogen and carbon; and

(b) permitting all solid materials that are employed to produce the mixture, or that are present in the mixture, to have a size that can be metered into a first combustion chamber of a hydrocarbon combustion gas generator of claim 1;

wherein the mixture may be formed by separately metering each of the materials into the first combustion chamber of the hydrocarbon combustion gas generator and permitting the materials to become mixed in the first combustion chamber of the hydrocarbon combustion gas generator, and wherein the mixture has an ability to effectively function as a fuel in a hydrocarbon combustion gas generator of claim 1.